Energy, Experience, and Educational Psychology: Changing practices in and beyond Fossil Capitalism

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Abstract: I first introduce an approach in educational psychology that has developed ways of understanding individuals' actions and experiences in explicit relation to socio-material practices and societal conditions. Next, I describe the particularities of human experience in the era of fossil capitalism, suggesting that, in educational psychological and multi-disciplinary research on experience and action, we should pay particular attention to homogeneous and heterogeneous aspects of subjective and collective experience, as well as to diverse manifestations of *nihilism* in human activities. Thereafter, I exemplify this approach with an excerpt from an empirical study of psychosocial welfare work in schools, illustrating how to detect the dynamics of choosing 'a ghost' over a socio-material practice when developing a school. Finally, I discuss the possibilities of this approach for multi-disciplinary research that aims to understand and support human strivings in a fossil and post-fossil era.

Keywords: energy, experience, educational psychology, fossil capitalism, practice

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Introduction

In their book *Energy and Experience*, Salminen and Vadén (2013) suggested that we should see modern, Western ways of living as exceptional in the history of humankind, due to the availability of an exceptionally powerful source of energy—oil. Even though 'acceleration' is considered to be one of the defining features of recent history (e.g. Rosa, 2016), the question of energy has, according to Salminen and Vadén (2013), remained undertheorised. They suggested that most of the conceptualisations of human activities are *nafthist*, meaning that they are blind to a form of societal reproduction—

fossil capitalism—that has been developing since the end of nineteenth century under the combined influence of fossil fuels and capital. Even though most aspects of human life depend on cheap and easily utilisable fossil fuels, this material ground of human action and experience is difficult to recognise.

Psychology exercises considerable power in terms of how humans understand themselves. It is not an exaggeration to compare this influence to the influence that natural sciences have had on our perception of the cosmos. When we observe the sun shining, we can say: 'the Earth revolves around the Sun', even though this seems to contradict our direct

perception (e.g. Himanka, 2019). Likewise, although it may seem intuitively clear that psychology is concerned with what happens 'between the ears', there are, in fact, strong research traditions that have not reduced the materiality of human existence to brains or the human body, but have striven to conceptualise psychological phenomena in relation to our everyday practices and the material objects that surround us (e.g. Holzkamp, 2012a; Miettinen, 2005; Højholt & Schraube, 2016). From this perspective, psychology that focuses on 'between the ears' and 'inside the skin' (Bentley, 1941), disregarding the material and societal mediatedness of human action and experience, focuses actually on a 'ghost' that does not actually exist (e.g. Dreier, 2008).

In many fields of psychology and educational psychology, this focus on a 'ghost' entails a peculiar 'style of reasoning' (Sugarman, 2017; Hacking, 2002), which explains human action and experience, with particular psychological properties or processes—such as 'attitude' or 'self-esteem'—as invisible internal causes of observable behaviour. Sugarman (2017, p. 21) suggested that, despite its fallacies, this kind of psychologism has set, and continues to set, "the agenda for determining what counts as psychological phenomena, their nature, and how they are to be investigated and understood". The problem is that, when explaining people's actions and experiences in relation to de-contextualised psychological processes, we end up with something that has been labelled 'the Colgate problem' of psychology: if one squeezes 'subjectivity in context' out, methodically, it is very difficult, if not impossible, to put

it back in (e.g. Markard, 2017; Schraube & Højholt, 2019). This is not only a problem for academic psychology; for instance, in his critical review, Jack Martin (2004, 2007) argued that psychological and educational psychological concepts of self have found their way into professional and non-professional understandings of ourselves and others. Even though Martin pointed out that these self-concepts may have some value when it comes to developing effective practices of learning and teaching, he found them relatively empty in terms of conceptualising how human beings grow into moral, political, and societal beings in conflictual scenes of everyday living. While the concept of the de-contextualised self has indeed been criticised in several disciplines, it keeps 'haunting' us, both in academic research utilising psychological concepts and methods, and in various scenes of everyday living, including work ('she has such a difficult personality') and education ('he isn't really motivated'). This happens despite individuals' best intentions. In this sense Dreier's (2008) term— 'ghost'—is appropriate: psychological properties, and internal, detached processes, accompany us invisibly in our everyday lingual and other practices; they may occur unexpectedly, sometimes hauntingly, and we may occasionally find ourselves being possessed by them.

In this article, I first introduce an approach in educational psychology that has taken both internal and external critique seriously and developed ways of understanding individuals' actions and experiences in explicit relation to socio-material practices and societal conditions. Next, I describe the particularities of human experience in

the era of fossil capitalism, suggesting that, in educational psychological and multi-disciplinary research on experience and action, we should pay particular attention to homogeneous and heterogeneous aspects of subjective and collective experience, as well as to diverse manifestations of *nihilism* in human activities. Thereafter, I exemplify this approach with an excerpt from an empirical study of psychosocial welfare work in schools, illustrating how to detect the dynamics of choosing 'a ghost' over a socio-material practice when developing a school. Finally, I discuss the possibilities of this approach for multi-disciplinary research that aims to understand and support human strivings in a fossil and post-fossil era.

Human beings as an organism–environment system

Alternative conceptions of human being as participants in maintaining and changing their living conditions have been developed especially in cultural-historical traditions, drawing on Lev Vygotsky's and Alexei Leontjev's Russian materialistic psychology. The Russian influence is evident also in the theory of an *organism–environment system* that was developed at the University of Oulu in the 1990s. Professor Timo Järvilehto and his colleagues conceptualised the objects of psychological research in a way that questioned the Western intuitive separation of a human being from his/her environment. Järvilehto (e.g. 1994, 2009; Turkey, 2009) suggested that a human being should not be demarcated by his/her skin; rather we should see a human

being as a specific organism–environment system that is continuously organised in order to produce certain *results of actions*. Psychological analysis should, thus, start by defining an individual's goals, together with his/her participation in the production of the actual results. In addition, it is necessary to define the moments of the environment that contribute to this production. Although early conceptual and empirical work developing organism–environment theory focused on physiological measurements, and criticism of the prevalent approaches conceptualising psychological measures as responses to stimuli, the approach widened to include individual experience in social and societal contexts and processes (Soini, 1999; Suorsa, 2014).

The result of action and organism–environment system have remained central concepts in this approach. The focus on subjective experience and everyday practices, however, generated new concepts articulating the groundedness of human action and experience, and the dynamics and conflictual nature of personal participation in maintaining and changing social practices and societal conditions (Suorsa, 2014). Subjective grounds for action were seen as individually accentuated general possibilities for action which, again, are available in existing societal conditions. The task of psychology was thus to investigate how individuals participate in maintaining and changing their living conditions, so the focus of educational psychology turned towards asking how this participation changes (Suorsa, 2018).

Characteristic experiences in the age of oil

If we accept Salminen and Vadén's (2013) suggestions about fossil capitalism as a central general condition of modern human existence, and *fossil syntax* as defining the general possibilities for action in Western societies, we should ask in psychology how individuals participate in maintaining and changing fossil capitalism. Educational psychology's challenge, accordingly, is to ask whether and how this participation changes. Following Salminen's and Vadén's conceptualisations, this is exceptionally difficult, because our dependence on fossil fuels is a particular 'blind spot' in our experience: the fossil syntax defines both our understanding of the world and our self-understanding; it defines the limits of our understanding. We only encounter the visible manifestations of oil, in the pumps and lights of the gas station, but the historical power of oil remains invisible and elusive. Salminen and Vadén (2013) suggested, in fact, that we should approach the experience of oil in a non-individual and non-psychological way, instead considering experiences of living *with* oil. Even though a focus on our individual experiences of oil is limited, we can learn to understand our place in fossil capitalism by examining the general features of human experience in the era of fossil capitalism.

Salminen and Vadén suggested that Bataille's distinction between the homogeneous and the heterogeneous is of central importance here:

> "*Bataille distinguishes between two areas of life and economy: the homogeneous and the heterogeneous. The homogeneous is internally commensurable. As an example, one can think about the commensurability created by monetary value in capitalist economies. In contrast, the heterogenic is incommensurable both with regard to the homogeneous and in its internal composition. One example is the Durkheimian account of the sacred: there is the sacred of the right hand, all pure and noble, and the sacred of the left hand, filthy and disgusting. Energy and experience are heterogeneous in this sense: incommensurable, without a centre, and without a purpose*" (2015, p. 62)

In their 'small nafthological lexicon' Salminen and Vadén (2013, p. 198–199) saw homogeneity as a particular quality, aspiration, or tendency of an experience that standardises, restricts internal and reciprocal diversity, and seeks to control the outcomes. Heterogeneity, on the other hand, they defined as a quality, aspiration, or tendency of an experience that typically diversifies and distracts, or even destroys clear-cut structures. They suggested that heterogeneity is difficult or impossible to grasp in fossil capitalism, because it lacks purpose. The illusion of infinite energy—oil with high EROEI—on the other hand, maintains the idea that "anything could be transformed to anything else, as if any given process could be sped up or perfected at will" (Salminen & Vadén, 2015, p. 66). This gives the age of oil a feeling of transience, mutability, and acceleration, so that what seems solid becomes insubstantial. This, however, is erroneous, since the "unrecognised root of all this is the copious amount of high EROEI energy, without which both technological machination and

obscene social hierarchies stop functioning" (Salminen & Vadén, 2015, p. 66).

The impression of transience and infinite mutability, accompanied by a feeling of acceleration, also produces another characteristic of experience in the age of oil—nihilism.

By the concept of nihilism Salminen and Vadén (2013, p. 200) describe the promotion of meaninglessness and indifference into prevalent values. As an ideology, nihilism accentuates the replaceability of everything and everyone and restricts structurally experiences of uniqueness, particularity, and the sacred.

Subjectively, the experiences characterising homogeneity and nihilism may be experienced positively: acceleration can be intoxicating, control over circumstances and objects is empowering, and indifference may feel like a victory. These experiences may also characterise individual success in fossil capitalism. In the framework that Salminen and Vadén (2013) suggested, this happens at the cost of diversity, the dynamic *forest of foci,* and eventually, the viability of planet Earth.

What, and how, should we think, then, about the framework of energy and experience in psychology and educational psychology? Surely, psychologists and educational scientists took the question of sustainable development seriously also before Salminen and Vadén started to discuss the 'black heart of experience'; however, it has often been the role of the educational and other psychological researchers and practitioners to encourage and comfort individuals living in difficult or impossible conditions, instead of supporting them in finding ways to change the conditions (Holzkamp, 2012b).

The 'black heart of experience', as conceptualised in *Energy and Experience* may, however, offer new insights for psychology and educational psychology; for example, it offers the possibility of analysing experience by re-searching for aspects of homogeneity and nihilism in, say, experiences of success or happiness. It also suggests that we should take seriously the heterogeneity *in* experiences—the aspects that seem to be distracting or destructive—and seek opportunities for new beginnings relating to them, instead of merely finding ways to help people adjusting in prevalent social and societal practices.

Case Description

The research group *MIC: Multi-professional collaboration supporting individuals and communities*, situated in *Research Center for Psychology and Educational Psychology* at the University of Oulu (www.oulu.fi/psychology) carries out research, education, and development projects in the field of pupil and student welfare work in Northern Finland. Its practices have involved researchers' participation in discussions and activities about current problems and possibilities for pupil and student welfare. MIC has also planned and executed interventions to support participants in their endeavours (e.g. Suorsa, Rantanen, Mäenpää & Soini, 2013; Suorsa, 2019). The data that has been collected over the years includes video and audio recorded group meetings, written accounts, and researchers' field notes. The research can generally be summarised as consisting of intertwined phases of engaging, navigating,

and changing (see Kuure *et al.*, 2016). Overall, its approach can be referred to as cultural-historical educational psychology (see Martin, 2006; Suorsa, 2015a).

One recent strand of our research involved participating in the pupil and student welfare groups in three schools in Northern Finland. The research strove to understand the challenges and possibilities of multi-professional collaboration in *communal student welfare work*, the goal of which is to develop schools into healthy and safe environments that support the teaching and learning activities taking place in them. In the following, I attempt to identify the 'black heart of experience', using a case description from a study that seeks to understand how the multi-professional group achieves common goals in their everyday activities.

The municipality collects yearly descriptions from students, their parents, and their teachers about their experiences inside and outside school. Also yearly, the student and pupil welfare groups discuss the outcomes of this data: 'What does it say about our school?', 'What does this mean in terms of my everyday work?', 'What should we do to make this better?' One constant topic appearing in the data is the need for meaningful encounters in school. For several years, one of the main issues in school development has been to find ways to build communities that enable meaningful encounters for everyone in everyday school life. This is regularly discussed in groups with teachers and students and, every year, they develop ideas and practices for developing meaningful encounters in schools. Every year, the questionnaire elicits the same information: from the students' perspective, there is a lack of meaningful encounters.

A topic that often comes to the fore in student welfare groups is the problem of students not *having their lunch in the school cafeteria, but using the lunch hour to go to nearby shops for snacks. The reasons for this are believed to be the quality of the food, and the noise in the school cafeteria. This topic seems to evoke thoughts, feelings, memories, and discussion about values relating to school work. In addition, societal issues, such as whether it was right for the city to privatise the catering services, are discussed. Memories from the participants own school days emerge: for instance, the school psychologist remembered that she and her co-students had lively discussions about the food and what happened in the school cafeteria. There was agreement among the professionals that the lunch hour should be developed, so that it would become the beating heart of the school again, as it was for some professionals.*

At the end of such discussions, the topic generally gave way to other concerns regarding psychosocial welfare work, such as students' low self-esteem, lack of motivation, or inability to regulate their learning activities. These topics seemed, for some reason, to be easier to grasp—even though the discussion about supporting students' self-esteem was somewhat futile and did not seem to resonate with the group in the way that the talk about the lunch did. Since the food services are privatised, there is little the professionals can do about the situation, so they turned to discussing ways of enabling teachers to have more meaningful encounters with students. The multifaceted discussions about lunch were not reported.

This is the sort of ordinary conversation that we can imagine taking place in other types of meetings. The conversation starts somewhere (a questionnaire about students' experiences); proceeds to a topic that seems to be related (school food and cafeteria), evaluating the limits of what the participants can actually do about this (due to organisational aspects there

is not much they can do); then focuses on something that participants feel is beneficial (supporting students' experiences of wellbeing). The general features of such conversations often occur in other organisations too. How, then, can we identify the homogeneous, heterogeneous, or nihilistic aspects of experiences in such conversations?

Educational psychological research (Suorsa, 2018) may begin by formulating possible *fabrics of grounds* (FOGs) in the conversation:

FOG1: In a situation where I notice that students are reporting experiences of not feeling well, I find it interesting and inspiring to discuss the way the lunch is organised at school, because I think the lunch hour is potentially important in creating the school community.

FOG2: In a situation where I have no power over how the lunch hour is organised, I find it relevant to focus on planning how to support teachers in their interaction with students, because I think the way teachers interact with the students is important in terms of student wellbeing.

Since we were following only the general conversation, it was not possible to detect all individual variations and uncertainties relating to these FOGs: it was possible that participants were more or less satisfied with the conclusions. In terms of what actually happened in this meeting, however, the FOGs capture the essential components: the conclusion was not contested in the conversation, and in the official record of

the meeting, the discussion about the lunch hour was not mentioned.

Interpretation

Taking our interpretation to the limit—with a little dramatisation and exaggeration—following Dreier's conceptualisations, we can argue that, in such shifts of conversation, we are witnessing a move from a socio-material practice to a 'ghost' that does not actually exist—a delusion. Certainly, interaction between students and teachers is a socio-material practice. The focus of psychosocial welfare work is, however, on 'what is said' and what goes on 'between the ears' and between persons, disregarding the socio-material premises of the interaction, extracting it from a real environment, and transferring it to a detached, idealised space of encounters (see also e.g. Højholt, 2011; Mehan, 1993). This seems to be analogous to Holzkamp's (2013) notion of psychological work in general: trying to bring about individual happiness and fulfilment in impossible conditions.

If this is really what is happening—if the result of this action is a shift from reality to a delusion that leaves the actual conditions of our action untouched, thus contributing to maintenance of the status quo—how is it possible? Is it due to blindness in terms of the material basis of our existence, as Salminen and Vadén (2013) suggested? Is it due to nihilistic indifference, corresponding to the 'black heart of experience', following the realisation that our conditions are outside our control? This indifference was perhaps most clearly visible in a civil

servant's conclusion (FOG3) that, as civil servants, they were under the supervision of their superiors and must try to accomplish what their superiors expected of them, even though the goal might be unrealistic. A carnivalesque visualisation of this FOG can be found in Jukka Takalo's song and video *We Only Work Here* (2013).

Educational psychological research may proceed from identifying personal participation as fabrics of grounds towards a more detailed analysis of this participation, utilising concepts that help in understanding the individual's activities, goals, and experiences that contribute to the maintenance and change of societal conditions (Suorsa, 2019). The dynamics of this participation can be captured by a subject-scientific concept of agency (*Handlungsfähigkeit*), which seeks to articulate, on the one hand, a basic human need and possibility to consciously participate in maintaining and changing one's own relevant living (and working) conditions; on the other hand, the concept articulates the conflictual nature of this participation— that we also strive to preserve our current possibilities of action. Changing conditions of action entail also a risk of endangering one's position and current possibilities for action under those conditions. Thus, it may also be subjectively functional to renounce from the general human possibility of developing the conditions in accordance with individual and collective needs and values. Conforming to the prevalent conditions may occur both consciously and unconsciously; for instance, by lowering one's expectations, rationalising, or suppressing (e.g. Holzkamp-Osterkamp, 1991).

In a subject-scientific approach (e.g. Holzkamp, 2012b), the relationship between generalised and restrictive agency is seen as a central contradiction in Western human action and experience. Holzkamp and his colleagues suggested that we should re-interpret, for example, the individualistic conceptions of 'thinking', 'feeling', 'motivation', and 'interaction', based on the idea that they are subjective aspects of our historical and contradictory participation in maintaining and changing societal conditions (see also Suorsa *et al.*, 2017).

In an organisational context, it is clear that a change in the premises of action disturbs, in many ways, the current processes: what would happen if the student welfare group actually placed the change of lunch hour practices on its main agenda? This would entail changes in the circulation of money in the city and, for example, in the food supplier's organisational work arrangements. It seems clear that this would be an unreasonable change of plan with respect to participants' already tight schedules. Erik Axel (2011) used the concept of *conflictual cooperation* to describe a situation in which individuals in organisations, at times, see no alternative to preserving the existing conflicts in the everyday, because to address them would mean too great a disturbance in the results of action the organisation is organised to achieve and committed to achieving. This concept seems to be essentially relevant to conversations about organising the lunch hour.

The purpose of this interpretation is not to comment on the individual student welfare group that had a conversation about organising the lunch hour in a

school and supporting student wellbeing; rather, it is to show that it is possible to examine conversations and describe—with relevant concepts—the conversation as a component of participation in maintaining and changing conditions, even when it was not obvious at first sight. In the selected case, I chose the fossil capitalism as a central condition, in the maintenance and change of which the actions and experiences participate. Furthermore, I chose the characteristics of experience in fossil capitalism as clues to themes that might merge in the interpretation of the data. Finally, I identified in the conversation a nihilistic shift from socio-material reality to a detached psychological process—to a 'ghost'.

In similar interpretations it would be possible to create descriptions of 'typical' shifts in everyday conversations and practices, in which nihilistic indifference allows us to keep doing things as they have previously been done, showing the difficulty of changing experiences and everyday practices in fossil capitalism. This is one answer to Greta Thunberg's question: 'How dare you?' On the other hand, such analyses uncover disruptions and new openings that may be starting points for building new, realistic ways to move forward, such as by taking seriously the aspects of conversations that address factors that cannot be changed immediately; for instance, by articulating positive conclusions ('we should have more control over the organisation of the lunch hour'), and proposing and re-negotiating them systematically in the proper arenas. A more thorough subject-scientific analysis of individual participants' experiences could produce individual (and generalisable)

ways of 'homogenising' heterogeneous and incommensurable experiences to meet the overall demands of a situation, without risking one's current possibilities for action in a community that is organised effectively to produce certain results of action (and not to question these results).

Discussion

Vadén and Salminen (2018, p. 33) suggested that "there is a structural parallel between the way in which the modern subject detaches itself from its material and social surroundings and the way in which a fossil fuel economy detaches production from consumption, products from waste, actions from consequences". In the same way that we are indifferent to the origin of the petrol we need for transportation, one could argue that we are, in psychosocial welfare work, indifferent to the conditions that create the psychological problems we are trying to alleviate. In the selected case, this was exemplified by the unarticulated and furtive shift in the conversation from societal arrangements to interaction between individuals, focusing on de-contextualised psychological processes of feeling and motivation. The societal arrangements which seemed to be outside the participants' control faded into a *nihilistic fog*. Ideally, professionals' observations about arrangements that are beyond their immediate control should be utilised to expand the object and objective of multi-professional work. The enhanced object of the activity would also be "responded to in a way that reflects and respects the expertise that led to its expansion"

(Edwards 2012, p. 26). The indifference is, again, not only a question of will; rather, it is a conceptual issue—as long as the concepts we use only refer to a 'ghost', we are unable to make connections and grasp the socio-material nature of the problems at hand. This is what Martin (2004) had in mind when he talked about the inadequacy of educational psychological concepts of self: with the concepts of self-regulation, self-esteem, and so on, we can proceed (also) without explicit knowledge about the actual everyday arrangements, which we as professionals and researchers, as well as our clients, students, and other participants, are maintaining and changing in our everyday activities. What is needed, instead, are concepts that keep the issues of the context alive, even if we frequently face our inability to explicate this context correctly, and almost always lack essential knowledge and understanding of the context and consequences of our activities.

Salminen and Vadén (2013) suggested that Western thought is essentially nafthist: oblivious to the material basis of our existence, especially concerning the source of energy. In the psychological traditions, out of which the approach of this article has arisen, there have been several attempts to articulate the individual, social, societal, and material nature of human actions and experiences. However, we can still call them nafthist, in the sense that Salminen and Vadén suggested, because fossil capitalism as a prevalent form of societal arrangements has not been explicitly addressed. Certainly, to do this along the lines that Salminen and Vadén suggested, with refined ideas about, for instance, fossil syntax or forests of foci,

would not have been possible before their conceptual innovations.

In the fields of psychology and philosophy, it is not uncommon to find that the earlier researchers were oblivious to some essential feature of reality. Indeed, the history of philosophy can be seen as a continuum, whereby the next great thinker develops a new concept offering promising new insights into reality and/or societal arrangements. Marx articulated his materialistic philosophy in relation to Hegel's 'idealism', and Heidegger described the whole history of thinking as forgetful of the 'being' of beings. Luce Irigaray, in her turn, suggested that it was the 'sexual difference' that had been forgotten by Western philosophy. Critical theorists, such as Habermas (communication), Honneth (recognition), and Rosa (resonance) followed each other in introducing new concepts that required reconstructions of earlier theories of society.

In the field of psychology, the organism–environment theory (Järvilehto, 1994, 2009) has suggested that we should see human beings and their environment as a single unitary system instead of separate systems which interact with each other. Subject-scientific psychology (Holzkamp, 1983) suggested that we should take seriously the societal mediatedness of human action and experience and develop a new language for psychological study. Such an approach would not understand the relationship between human beings and their environment as an external relationship, with the environment 'conditions' affecting human beings in certain ways; rather, it would see humans as continually participating in changing and

maintaining social practices and societal conditions. The societal conditions, thus, would not determine the human actions and experiences, but would be seen as premises for grounded actions and experiences.

The interpretation of the conversation in this article has combined these psychological approaches with nafthology by utilising the concepts of result of action and fabric of grounds as the main analytical tools. Fabrics of grounds articulate individual and collective participation in maintaining and changing social practices and societal conditions, aiming to articulate the socio-material mediatedness of this participation. Paying attention to the groundedness of human action and experience seems important for, on the one hand, identifying tendencies towards the homogenisation of experiences, as well as aspects of nihilism in our everyday lives. On the other hand, they can also be used to identify the heterogeneous aspects of our experiences, thus uncovering emerging possibilities in everyday practices and experiences (Suorsa, 2015b). In nafthological terms, fabrics of grounds, as an analytical tool, help us to identify possibilities and restrictions in the forest of foci, in which incommensurable and heterogeneous meanings and possibilities continuously emerge "without a tendency toward purification and concentration" (Salminen & Vadén, 2015, p. 95).

A topical demand for renewal in the field of psychology and educational psychology arose from the increasing presence of digital technology in our everyday lives. Since digital technology and devices, and their production, consume increasing amounts of energy, it might be important, also, to consider different psychological approaches to technology using a nafthological perspective. We could also find interesting points of correspondence in the subject-scientific approach to the psychology of technology that was developed in recent years in Roskilde University. Ernst Schraube (2020, in press) has argued, in relation to technology and practices of everyday living, that in addition to human intentions and practices that are materialised in human technology, technology always includes an "excess": something beyond our knowledge and control, or even beyond our imagination. Schraube (2020, in press) further suggested, drawing on Günther Anders' work, that "their decisive power and efficacy can often be located in exactly what was not originally intended or imagined". In terms of studying technology in everyday lives, Schraube (2020, in press) has suggested that we should focus on people's subjective experiences of living with technology, starting with all kinds of uncertainties, disruptions, hopes, and fears. A focus on subjective experience is, however, inadequate:

> *"The materialised actions of things already appear in the experiences of persons in rudimentary forms. However, to elucidate the subjective experiences and engagements in their actual technological connections, the analysis requires an integrated, two-sided methodological approach which explores both the experiences and actions of human subjects as well as the materialised experiences and actions of technological artifacts"* (Schraube, 2020, in press)

In a similar vein, I suggest, we could use the idea of nafthology to understand ourselves in the transition from a fossil to a post-fossil era, considering our subjective experiences in relation to social practices, technology, and societal conditions. The study of changing subjective experiences and actions in relation to social practices and societal conditions, in fossil capitalism and beyond, should be seen as a multidisciplinary endeavour. Whereas, for instance, sociological research focuses on societal structures and discourses, and industrial management and engineering on controlling and developing sociotechnical wholes, educational psychological research focuses on individuals' and groups' *grounded participation* in maintaining and changing these structures and wholes. Ideally, there would be a multi-disciplinary research group to examine the scenes of everyday living from varying distances; for instance, in terms of language, economics, and geography. Research conducted in specific disciplines might also demand a new discipline; for example, educational psychological research on subjective experiences of unemployment may need further clarification from a geographical perspective, or studies on regional development in a post-fossil era might generate a need for educational psychological research concerning changing personal participation in specific contexts.

Conclusion

This article took the theory of an organism–environment system, subject-scientific psychology, and nafthology as its starting point. Each approach offers novel concepts for grasping human experiences and actions, philosophically and scientifically. They also have distinct origins and scientific traditions upon which they draw. An obvious common nominator in all three approaches was G. W. F. Hegel's philosophy, and its subsequent critiques and developmental lines, especially via Karl Marx and Martin Heidegger (e.g. Alexandrov & Järvilehto, 1993; Holzkamp, 1977; Vadén, 2014; see also Suorsa, 2011, 2014).

Following Klaus Holzkamp's (1983) theory of science, this article differentiated between (1) philosophical, (2) societal, (3) conceptual, and (4) theoretical levels of the research. By the philosophical (1) and societal (2) levels, Holzkamp meant the commitment to ontological, ethical, and societal matters that inevitably underpins the basic concepts of science (3), highlighting the aspects of reality that are essential for research. Finally, the theoretical level (4) referred to theories, based on empirical research, about how these highlighted aspects are actualised in the lives of human beings living in specific contexts.

In this article, I began by explaining basic concepts from organism–environment theory and subject-scientific psychology, most importantly with regard to the concepts of result of action and grounded participation (see also Suorsa, 2015a). Thereafter, I framed the object of the research—an everyday conversation—as a scene of fossil capitalism, suggesting that characteristic experiences in the age of oil— especially nihilism—are essential features of our historical and societal situation. My question in the case description and interpretation was, thus, not *whether* I would find instances of nihilism in professionals'

conversation; rather, my question was *how* nihilism manifested in the conversation. As a result, I created a theory—a description of reality based on the fundamental concepts of this article (results of actions, grounded participation, and nihilism)— of how nihilistic indifference occurs in everyday activities: It occurs as an unarticulated and furtive shift from socio-material practice (which is seemingly beyond our control, and thus fades into a nihilistic fog), towards a work objective that appears more manageable, but leaves the actual preconditions of the work untouched, thus positioning professionals as participants in maintaining the conditions of the problem they were trying to solve. A further objective of empirical research might be to identify different kinds of such incidents of nihilism, and explore their occurrence further in different contexts, examining the ways in which these incidents are subjectively functional for individuals and communities, to the extent that they sometimes maintain conditions which are generally undesirable for all participants. Furthermore, empirical research could suggest ways of fighting the nihilistic fog that leads us to renounce human possibilities for consciously participating in maintaining and changing our living conditions, in a way that corresponds with our individual and collective goals and values.

It goes (almost) without saying that both the philosophical–societal (1–2), and conceptual–theoretical (3–4) aspects of our treatise require further elaboration on several levels. It is also worth noting that, even though the approaches were presented in this article as 'individual', detached from other streams of theoretical discussion, there have been some refined descriptions of how the approaches relate and contribute to debates about, for example, trans- and posthumanism (e.g. Levant, 2017, 2016; Salminen & Vadén, 2018; Schraube, 2009). Such debates, however, lie beyond the scope of the present article, which merely aims to initiate discussion about possible ways of understanding the challenge of individual and collective changes of practice, in and beyond fossil capitalism, in empirical multidisciplinary research.

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